

## CLAIMS

What is claimed is:

1 1. A method of actively auditing a software system to determine status, the software system  
2 comprising a plurality of processes executed in an active processor domain, the method  
3 comprising the steps of:

4 generating an active message for processing by the active processor domain;  
5 generating a modified active message by providing an active time indicator associated  
6 with the active message for at least one process of the plurality of processes; and  
7 determining the status of the active processor domain in response to the modified active  
8 message.

1 2. The method of claim 1 wherein the step of determining the status of the active processor  
2 domain is responsive to the active time indicator.

1 3. The method of claim 1 wherein a respective active time indicator is associated with each  
2 process of the plurality of processes, and wherein the step of determining the status of the active  
3 processor domain is responsive to more than one of the active time indicators.

1 4. The method of claim 1 wherein the active time indicator comprises a time-stamp  
2 indicating the time the at least one process completed processing the active message.

1 5. The method of claim 1 wherein the active time indicator comprises a time-stamp  
2 indicating the time elapsed while the at least one process processed the active message.

1 6. The method of claim 1 wherein the step of determining the status comprises;  
2 determining a statistical characteristic of the active processor domain; and  
3 determining the status of the active processor domain in response to the statistical  
4 characteristic.

1 7. The method of claim 6 wherein the step of determining a statistical characteristic  
2 comprises generating a time average of the duration of the at least one process of the plurality of  
3 processes for a plurality of active messages.

- 1 8. The method of claim 7 wherein the step of determining a statistical characteristic  
2 comprises generating a standard deviation from the time average.
- 1 9. The method of claim 1 further comprising the steps of:  
2 generating a stand-by message for processing in a stand-by processor domain, the stand-  
3 by processor domain comprising a plurality of stand-by processes; and  
4 generating a modified stand-by message by providing a stand-by time indicator for at  
5 least one process of the plurality of stand-by processes in the stand-by domain.
- 1 10. The method of claim 9 wherein the step of determining the status of the stand-by  
2 processor domain is responsive to the stand-by time indicator.
- 1 11. The method of claim 9 wherein a respective stand-by time indicator is associated with  
2 each process of the plurality of stand-by processes of the stand-by domain and wherein the step  
3 of determining the status of the stand-by processor domain is responsive to at least two of the  
4 stand-by time indicators.
- 1 12. The method of claim 9 further comprises the step of transforming the active processor  
2 domain to the stand-by processor domain in response to the modified active message.
- 1 13. A system for actively auditing a software system to determine status comprising:  
2 an active processor domain, the active processor domain having at least one processor, the at  
3 least one processor executing at least one process, the at least one process receiving an active  
4 message and generating a modified active message in response thereto;  
5 a time-stamp mechanism in communication with the at least one process and for  
6 providing an active time indicator for use in generation of the modified active message; and  
7 a redundancy manager in communication with the active processor domain, the  
8 redundancy manager determining the status of active processor domain in response to the  
9 modified active message.
- 1 14. The system of claim 13 wherein the redundancy manager determines the status of the  
2 active processor domain in response to the active time indicator.

1 15. The system of claim 13 wherein the active time indicator comprises a time-stamp  
2 indicating the time the at least one process completed processing the active message.

1 16. The system of claim 13 wherein the active time indicator comprises a time-stamp  
2 indicating the time elapsed while the at least one process processed the active message.

1 17. The system of claim 13 wherein the redundancy manager determines a statistical  
2 characteristic of the active processor domain and determines the status of the active processor  
3 domain in response to the statistical characteristic.

1 18. The system of claim 17 wherein the statistical characteristic comprises a time average of  
2 the duration of the at least one process.

1 19. The system of claim 18 wherein the statistical characteristic comprises a standard  
2 deviation from the time average.

1 20. The system of claim 13 further comprising a stand-by processor domain, the stand-by  
2 processor domain having at least one processor, the at least one processor executing at least one  
3 stand-by process, the at least one stand-by process receiving a stand-by message and generating a  
4 modified stand-by message in response thereto, and wherein the redundancy manager determines  
5 the status of the stand-by processor domain in response to the modified stand-by message.

1 21. The system of claim 20 wherein the redundancy manager further comprises a control  
2 determination module, the control determination module transforming the active processor  
3 domain into the stand-by processor domain in response to the modified active message.

1 22. A system for actively auditing a software system to determine status comprising:  
2 means for executing at least one process in an active processor domain configured to receive an  
3 active message and generate a modified active message in response thereto;  
4 means for time-stamping in communication with the at least one process, the means for  
5 time-stamping generating an active time indicator for use by the means for executing; and  
6 means for the status of the active processor domain in response to the modified active  
7 message.